

Analytical Laboratory

13339 Hagers Ferry Road Huntersville, NC 28078-7929 McGuire Nuclear Complex - MG03A2 Phone: 980-875-5245 Fax: 980-875-4349

Order Summary Report

Order Number:	J110/0315				
Project Name:	WWTS - Biweekly				
Customer Name(s):	FGD WWTS				
Customer Address:	3195 Pine Hall Rd				
	Mailcode: Belews Steam Sta	tion			
	Belews Creek, NC 28012				
Lab Contact:	Jason C Perkins	Phone:	980-875-5348		
Report Authorized By: (Signature)		Date:		8/9/2011	

Program Comments:

FGD BiMonthly

Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with an "X" or "1" indicate a deviation from the method quality system or quality control requirement. All results are reported on a dry weight basis unless otherwise noted.

Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)

Certification:

The Analytical Laboratory holds the following State Certifications: North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2011015802	BELEWS	27-Jul-11 8:30 AM	TRAVIS THORNTON	FGD Purge Eff
2011015803	BELEWS	27-Jul-11 8:00 AM	TRAVIS THORNTON	EQ TANK EFF.
2011015804	BELEWS	27-Jul-11 8:00 AM	TRAVIS THORNTON	BIOREACTOR 1 INF.
2011015805	BELEWS	27-Jul-11 8:00 AM	TRAVIS THORNTON	BIOREACTOR 2 INF.
2011015806	BELEWS	27-Jul-11 8:00 AM	TRAVIS THORNTON	BIOREACTOR 2 EFF.
2011015807	BELEWS	19-Jul-11 9:30 AM	L.DAVIS	Trip Blank
2011015808	BELEWS	19-Jul-11 9:30 AM	L.DAVIS	FILTER BLANK
7 Total Samples				

Checklist:

Reviewed By:

DataBase Administrator

		COC and .pdf report are in agreement with sample and analyses (compliance programs and procedure		✓ Yes	□ No		
		All Results are less than the laboratory reporting lim	its.	Yes	✓ No		
		All laboratory QA/QC requirements are acceptable.	tory QA/QC requirements are acceptable.				
		The Vendor Laboratories have been qualified by the Analytical Laboratory					
Repo	ort S	ections Included:					
	✓ Jo	b Summary Report	✓ Sub-contr	acted Laborate	ory Results		
	✓ Sa	ample Identification	Customer	Specific Data	Sheets, Reports, & Documentation		
	✓ T€	echnical Validation of Data Package	☐ Customer	Database Ent	tries		
	✓ Ar	nalytical Laboratory Certificate of Analysis	☐ Test Case	e Narratives			
	☐ Ar	nalytical Laboratory QC Report	✓ Chain of 0	Custody			
			☐ Electronic	Data Delivera	able (EDD) Sent Separately		

Date:

8/9/2011

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Order # J11070315

Site: FGD Purge Eff Collection Date: 27-Jul-11 8:3	O AM				Sample #: Matrix:	2011015802 OTHER	
Analyte	Result	Units	Qualifiers	RDL	Method	Analysis Date/Time	Analyst
MERCURY (COLD VAPOR) IN WAT	<u>ER</u>						
Mercury (Hg)	416	ug/L		5	EPA 245.1	05-Aug-11 10:10	AGIBBS
TOTAL RECOVERABLE METALS E	Y ICP						
Boron (B)	197	mg/L		0.5	EPA 200.7	29-Jul-11 11:47	DJSULL1
DISSOLVED METALS BY ICP-MS							
Selenium (Se)	389	ug/L		10	EPA 200.8	01-Aug-11 11:50	KRICHAR
TOTAL RECOVERABLE METALS E	N ICD-MS						
Arsenic (As)	248	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Chromium (Cr)	359	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Copper (Cu)	335	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Nickel (Ni)	343	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Selenium (Se)	7110	ug/L		20	EPA 200.8	03-Aug-11 11:41	MHH7131
Silver (Ag)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Zinc (Zn)	616	ug/L		20	EPA 200.8	03-Aug-11 11:41	MHH7131
SELENIUM SPECIATION							
Vendor Parameter	Complete	ı			V_AS&C		
TOTAL DISSOLVED SOLIDS							
TDS	22000	mg/L		200	SM2540C	28-Jul-11 15:15	TJA7067

Site: EQ TANK EFF. Sample #: 2011015803

Collection Date: 27-Jul-11 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	Method	Analysis Date/Time	Analyst
MERCURY (COLD VAPOR) IN WAT	ER						
Mercury (Hg)	118	ug/L		2.5	EPA 245.1	05-Aug-11 10:12	AGIBBS
TOTAL RECOVERABLE METALS E	BY ICP						
Boron (B)	134	mg/L		0.5	EPA 200.7	29-Jul-11 11:51	DJSULL1
DISSOLVED METALS BY ICP-MS							
Selenium (Se)	271	ug/L		10	EPA 200.8	01-Aug-11 11:50	KRICHAR
TOTAL RECOVERABLE METALS E	BY ICP-MS						
Arsenic (As)	214	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Chromium (Cr)	221	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Copper (Cu)	200	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Nickel (Ni)	211	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131

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Order # J11070315

Site: EQ TANK EFF. Sample #: 2011015803

Collection Date: 27-Jul-11 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS E	BY ICP-MS						
Selenium (Se)	8980	ug/L		20	EPA 200.8	03-Aug-11 11:41	MHH7131
Silver (Ag)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131
Zinc (Zn)	376	ug/L		20	EPA 200.8	03-Aug-11 11:41	MHH7131

Site: BIOREACTOR 1 INF. Sample #: 2011015804

Collection Date: 27-Jul-11 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	Method	Analysis Date/Time	Analyst			
TOTAL RECOVERABLE METALS B	BY ICP									
Boron (B)	176	mg/L		0.5	EPA 200.7	29-Jul-11 11:55	DJSULL1			
DISSOLVED METALS BY ICP-MS										
Selenium (Se)	252	ug/L		10	EPA 200.8	01-Aug-11 11:50	KRICHAR			
TOTAL RECOVERABLE METALS BY ICP-MS										
Arsenic (As)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131			
Chromium (Cr)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131			
Copper (Cu)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131			
Nickel (Ni)	21.6	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131			
Selenium (Se)	292	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131			
Silver (Ag)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131			
Zinc (Zn)	< 20	ug/L		20	EPA 200.8	03-Aug-11 11:41	MHH7131			
SELENIUM SPECIATION										
Vendor Parameter	Complete	•			V_AS&C					

Site: BIOREACTOR 2 INF. Sample #: 2011015805

Collection Date: 27-Jul-11 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	Method	Analysis Date/Time	Analyst		
TOTAL RECOVERABLE METALS E	BY ICP								
Boron (B)	167	mg/L		0.5	EPA 200.7	29-Jul-11 11:59	DJSULL1		
TOTAL RECOVERABLE METALS BY ICP-MS									
Arsenic (As)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131		
Chromium (Cr)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131		
Copper (Cu)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131		
Nickel (Ni)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131		
Selenium (Se)	59.2	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131		
Silver (Ag)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131		
Zinc (Zn)	< 20	ug/L		20	EPA 200.8	03-Aug-11 11:41	MHH7131		

This report shall not be reproduced, except in full.

Order # J11070315

Site: BIOREACTOR 2 EFF. Sample #: 2011015806

Collection Date: 27-Jul-11 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	Method	Analysis Date/Time	Analyst			
MERCURY (COLD VAPOR) IN WAT	<u>ER</u>									
Mercury (Hg)	< 1	ug/L		1	EPA 245.1	05-Aug-11 10:15	AGIBBS			
TOTAL RECOVERABLE METALS BY ICP										
Boron (B)	173	mg/L		0.5	EPA 200.7	29-Jul-11 12:03	DJSULL1			
TOTAL RECOVERABLE METALS BY ICP-MS										
Arsenic (As)	< 5	ug/L		5	EPA 200.8	03-Aug-11 11:41	MHH7131			
Chromium (Cr)	< 5	ug/L		5	EPA 200.8	03-Aug-11 11:41	MHH7131			
Copper (Cu)	< 5	ug/L		5	EPA 200.8	03-Aug-11 11:41	MHH7131			
Nickel (Ni)	< 5	ug/L		5	EPA 200.8	03-Aug-11 11:41	MHH7131			
Selenium (Se)	5.88	ug/L		5	EPA 200.8	03-Aug-11 11:41	MHH7131			
Silver (Ag)	< 5	ug/L		5	EPA 200.8	03-Aug-11 11:41	MHH7131			
Zinc (Zn)	< 10	ug/L		10	EPA 200.8	03-Aug-11 11:41	MHH7131			
SELENIUM SPECIATION										
Vendor Parameter	Complete	9			V_AS&C					

Site: Trip Blank Sample #: 2011015807

Collection Date: 19-Jul-11 9:30 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	Method	Analysis Date/Time	Analyst				
TOTAL RECOVERABLE METALS BY ICP											
Boron (B)	< 0.05	mg/L		0.05	EPA 200.7	29-Jul-11 11:23	DJSULL1				
TOTAL RECOVERABLE METALS BY ICP-MS											
Arsenic (As)	< 1	ug/L		1	EPA 200.8	03-Aug-11 11:26	MHH7131				
Chromium (Cr)	< 1	ug/L		1	EPA 200.8	03-Aug-11 11:26	MHH7131				
Copper (Cu)	< 1	ug/L		1	EPA 200.8	03-Aug-11 11:26	MHH7131				
Nickel (Ni)	< 1	ug/L		1	EPA 200.8	03-Aug-11 11:26	MHH7131				
Selenium (Se)	< 1	ug/L		1	EPA 200.8	03-Aug-11 11:26	MHH7131				
Silver (Ag)	< 1	ug/L		1	EPA 200.8	03-Aug-11 11:26	MHH7131				
Zinc (Zn)	< 2	ug/L		2	EPA 200.8	03-Aug-11 11:26	MHH7131				
SELENIUM SPECIATION											
Vendor Parameter	Complete	9			V_AS&C						

Site: FILTER BLANK Sample #: 2011015808

Collection Date: 19-Jul-11 9:30 AM Matrix: OTHER

Analyte Result Units Qualifiers RDL Method Analysis Date/Time Analyst

DISSOLVED METALS BY ICP-MS

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Order # J11070315

Site: FILTER BLANK Sample #: 2011015808

Collection Date: 19-Jul-11 9:30 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	Method	Analysis Date/Time	Analyst
DISSOLVED METALS BY ICP-MS							
Selenium (Se)	< 2	ug/L		2	EPA 200.8	01-Aug-11 11:37	KRICHAR



18804 Northcreek Parkway Bothell, WA, 98011 Tel: (425) 483-3300 Fax: (425) 483-9818 www.appliedspeciation.com

August 8, 2011

Jay Perkins Duke Energy Analytical Laboratory Mail Code MGO3A2 (Building 7405) 13339 Hagers Ferry Rd. Huntersville, NC 28078 (704) 875-5245

Project: Belews - FGD WWTS (Bi-Monthly Sampling) (LIMS # J11070315)

Dear Mr. Perkins,

Attached is the report associated with four (4) aqueous samples submitted for selenium speciation analysis on July 28, 2011. The samples were received in a sealed cooler at -0.3°C on July 29, 2011. Selenium speciation analysis was performed via ion chromatography inductively coupled plasma dynamic reaction cell mass spectrometry (IC-ICP-DRC-MS). Any issues associated with the analysis are addressed in the following report.

If you have any questions, please feel free to contact me at your convenience.

Sincerely,

Ben Wozniak Project Manager

Applied Speciation and Consulting, LLC

Ben Wozniek

Applied Speciation and Consulting, LLC

Report prepared for:

Jay Perkins Duke Energy Analytical Laboratory Mail Code MGO3A2 (Building 7405) 13339 Hagers Ferry Rd. Huntersville, NC 28078

Project: Belews - FGD WWTS (Bi-Monthly Sampling) (LIMS # J11070315)

August 8, 2011

1. Sample Reception

Four (4) aqueous samples in 125mL HDPE bottles (provided by Applied Speciation and Consulting) were submitted for selenium speciation analysis on July 28, 2011. The samples were received on July 29, 2011 in a sealed container at -0.3°C.

The samples were received in a laminar flow clean hood void of trace metals contamination and ultra-violet radiation. Upon reception, the samples were designated discrete sample identifiers. An aliquot of each sample was filtered (0.45µm) and these filtrates were stored in a secure, monitored cryofreezer (maintained at a temperature of -80°C) until selenium speciation analysis could be performed via ion chromatography inductively coupled plasma dynamic reaction cell mass spectrometry (IC-ICP-DRC-MS).

2. Sample Preparation

All sample preparation is performed in laminar flow clean hoods known to be free from trace metals contamination. All applied water for dilutions and sample preservatives are monitored for contamination to account for any biases associated with the sample results.

<u>Selenium Speciation Analysis by IC-ICP-DRC-MS</u> Prior to analysis, an aliquot of each sample was filtered with a syringe filter (0.45µm) and injected directly into a sealed autosampler vial. No further sample preparation was performed as any chemical alteration of the samples may shift the equilibrium of the system resulting in changes in speciation ratios.

3. Sample Analysis

All sample analysis is preceded by a minimum of a five-point calibration curve spanning the entire concentration range of interest. Calibration curves are performed at the beginning of

each analytical day. All calibration curves, associated with each species of interest, are standardized by linear regression resulting in a response factor. All sample results are **instrument blank corrected** to account for any operational biases associated with the analytical platform.

Prior to sample analysis, all calibration curves are verified using second source standards which are identified as initial calibration verification standards (ICV).

Ongoing instrument performance is identified by the analysis of continuing calibration verification standards (CCV) and continuing calibration blanks (CCB) at a minimal interval of every ten analytical runs.

Selenium Speciation Analysis by IC-ICP-DRC-MS All samples for selenium speciation analysis were analyzed by ion chromatography inductively coupled plasma dynamic reaction cell mass spectrometry (IC-ICP-DRC-MS) on August 2, 2011. An aliquot of each sample is injected onto an anion exchange column and mobilized by a basic (pH > 7) gradient. The eluting selenium species are then introduced into a radio frequency (RF) plasma where energy-transfer processes cause desolvation, atomization, and ionization. The ions are extracted from the plasma through a differentially-pumped vacuum interface and travel through a pressurized chamber (DRC) containing a specific reactive gas which preferentially reacts with interfering ions of the same target mass to charge ratios (m/z). A solid-state detector detects ions transmitted through the mass analyzer and the resulting current is processed by a data handling system.

Retention times for each eluting species are compared to known standards for species identification.

4. Analytical Issues

The overall analyses went very well and no significant analytical issues were encountered. All sample results have been corrected in accordance with the continuing calibration verification recoveries to account for perceived instrument bias. All quality control parameters associated with these samples were within acceptance limits with the following exceptions:

The recoveries associated with the matrix spike (MS) and matrix spike duplicate (MSD) performed on the sample identified as Batch QC were below the established control limit of 75% for selenocyanate (0.0% for both). The MS and MSD also included selenite in the spiking solution which yielded elevated recoveries (168.2% and 166.0%, respectively). The low recoveries for selenocyanate correlate with the elevated recoveries of selenite suggesting that the sample matrix induces species conversion. The fact that no species conversion was observed in the ICV or CCVs, which contain both selenite and selenocyanate, demonstrates that the applied method stabilizes these selenium species in solution. Since the conversion of selenocyanate to selenite in the MS and MSD is a function of the sample matrix and the recoveries confirm a mass balance, no corrective action was required. The reported results

are deemed representative of the supplied samples and suggest that selenocyanate is not stable in the spiked sample matrix.

The estimated method detection limits (eMDLs) for selenite, selenate, and selenocyanate are generated from replicate analyses of the lowest standard in the calibration curve. Not all selenium species are present in preparation blanks; therefore, eMDL calculations based on preparation blanks are artificially biased low.

The eMDL for methylseleninic acid and selenomethionine is calculated from the average eMDL of selenite, selenate, and selenocyanate. The calibration does not contain methylseleninic acid or selenomethionine due to impurities in these standards which would bias the results for other selenium species.

If you have any questions or concerns regarding this report, please feel free to contact me.

Sincerely,

Ben Wozniak

Project Manager

Applied Speciation and Consulting, LLC

Selenium Speciation Results for Duke Energy Project Name: Belews - FGD WWTS (Bi-Monthly Sampling) Contact: Jay Perkins LIMS #J11070315

Date: August 8, 2011 Report Generated by: Ben Wozniak Applied Speciation and Consulting, LLC

Sample Results

						Unknown Se
Sample ID	Se(IV)	Se(VI)	SeCN	MeSe(IV)	SeMe	Species (n)
FGD Purge Eff	144	149	ND (<1.9)	ND (<4.4)	ND (<4.4)	0 (0)
BioReactor 1 Inf	68.2	122	ND (<0.49)	2.4	ND (<1.1)	0 (0)
BioReactor 2 Eff	ND (<0.87)	ND (<1.9)	ND (<0.49)	ND (<1.1)	ND (<1.1)	0 (0)
Metals Trip Blk	ND (<0.17)	ND (<0.38)	ND (<0.10)	ND (<0.22)	ND (<0.22)	0 (0)

All results reflect the applied dilution and are reported in µg/L

ND = Not detected at the applied dilution

SeCN = Selenocyanate

MeSe(IV) = Methylseleninic acid

SeMe = Selenomethionine

Unknown Se Species = Total concentration of all unknown Se species observed by IC-ICP-MS

n = number of unknown Se species observed

Selenium Speciation Results for Duke Energy Project Name: Belews - FGD WWTS (Bi-Monthly Sampling) Contact: Jay Perkins LIMS #J11070315

Date: August 8, 2011 Report Generated by: Ben Wozniak Applied Speciation and Consulting, LLC

Quality Control Summary - Preparation Blank Summary

Analyte (µg/L)	PBW1	PBW2	PBW3	PBW4	Mean	StdDev	eMDL*	eMDL 10x	eMDL 50x	eMDL 200x
Se(IV)	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.17	0.87	3.5
Se(VI)	0.000	0.000	0.000	0.000	0.000	0.000	0.038	0.38	1.9	7.7
SeCN	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.10	0.49	1.9
MeSe(IV)	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.22	1.1	4.4
SeMe	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.22	1.1	4.4

eMDL = Estimated Method Detection Limit

Quality Control Summary - Certified Reference Materials

Analyte (µg/L)	CRM	True Value	Result	Recovery
Se(IV)	LCS	9.57	9.48	99.0
Se(VI)	LCS	9.48	9.42	99.4
SeCN	LCS	8.92	9.10	102.0
MeSe(IV)	LCS	6.47	6.53	100.9
SeMe	LCS	9.32	8.74	93.7

^{*}Please see narrative regarding eMDL calculations

Selenium Speciation Results for Duke Energy Project Name: Belews - FGD WWTS (Bi-Monthly Sampling) Contact: Jay Perkins LIMS #J11070315

Date: August 8, 2011
Report Generated by: Ben Wozniak
Applied Speciation and Consulting, LLC

Quality Control Summary - Matrix Duplicates

Analyte (µg/L)	Sample ID	Rep 1	Rep 2	Mean	RPD
Se(IV)	Batch QC**	3.70	3.78	3.74	2.0
Se(VI)	Batch QC**	ND (<1.9)	ND (<1.9)	NC	NC
SeCN	Batch QC**	ND (<0.49)	ND (<0.49)	NC	NC
MeSe(IV)	Batch QC**	ND (<1.1)	ND (<1.1)	NC	NC
SeMe	Batch QC**	ND (<1.1)	ND (<1.1)	NC	NC

ND = Not detected at the applied dilution

NC = Value was not calculated due to one or more concentrations below the eMDL

Quality Control Summary - Matrix Spike/ Matrix Spike Duplicate

Analyte (µg/L)	Sample ID	Spike Conc	MS Result	Recovery	Spike Conc	MSD Result	Recovery	RPD
Se(IV)	Batch QC**	278.0	471.4	168.2*	278.0	465.3	166.0*	1.3
Se(VI)	Batch QC**	252.3	225.8	89.5	252.3	222.5	88.2	1.5
SeCN	Batch QC**	228.8	ND (<0.49)	0.0*	228.8	ND (<0.49)	0.0*	NC

NC = Value was not calculated due to one or more concentrations below the eMDL

^{**} Batch QC performed on BioReactor 2 Eff from LIMS # J11070314

^{*} The recovery is outside the established control limit of 75-125%; please see narrative

^{**} Batch QC performed on BioReactor 2 Eff from LIMS # J11070314

Duke Mail Code			Ouke Energy Analytical Laboratory Mail Code MGO3A2 (Building 7405) 13339 Hagers Ferry Rd			Analytical Laboratory Use Only ORDER# J 1 0 70315 MATRIX: OTHER Samples Originati									DI		UTION		
Energy		Huntersville, (704) 8 Fax: (704)	Logged B	ck	Date & Time			93	38	SAM: Water		ROGRAM	Ground NPDES inking Water			to LAB CLIENT			
1)Project Name		ws - FGD lonthly Sampling)	2)Phone No:	iv AS	5&C						. 8 ler Temp (C)			RCR		UST	1		
2) Client:		y, Melonie Martin, an, Tom Johnson **	4)Fax No:	P(D#1332	41	1ºPrese 2=H ₂ SO 4=Ice	erv.:1= 0 ₄ 3=1	=HCL HN⊖₃		3,4	4	3,4			4			
5)Business Unit:		6)Process:	Mail Code:	MR#												or to filled ies)			
8)Oper. Unit:		9)Res. Type:	10)Reso. Center:			o complet		16 Analy	Required				(no dig.)**			- vend o place th bagg	3		
LAB USE ONLY	Se Speciation Bot		and the second			2. 2nd and 4th V		17Comp.	18 Grab	TDS	Hg - 245.1	Metals*	Se, soluble			Se, speciation AS&C (Important t bottle back into bo			
015802	B07584		Purge Eff	Date	75:30	Signa	ature	11	8	1	1	1	1		-	1	ТТ		
, 03 s	00.50		Tank Eff.		08:00	Tail	hibe			T'	1	1	1				++		
04	B10433		eactor 1 Inf	52	08:00	Travel	hu-					1	1		i i	1			
05		BioRe	eactor 2 Inf	The state of the s	08.00	Trun	Thorb					1							
06	B11679		eactor 2 Eff	7/27/11	08:00	Tru J	hs				1	1			-	1			
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07	B08632		ls Trip Blk	7/19/11	0930	- /	rus					1				1			
i i		** sand field call h	oottles for sol. Se				Filtering o	of the	Se is p	perfor	med in	the fie	ld please	e provide a fi	iter bl	ank too	T T		
3		sena fiela coli. L	ottles for soi. Se																
1) Relinquished By	The	ate below - fill out from left to pate/Tim	e	2) Accepted By	urie	r			Date/	27	/11		7	22R	eque	sted T	urnarou		
3) Relinguished By COUVIEY 5)Relinguished By		Date/Fim 7/2/8 Date/Fim		4) Accepted By	Dau			,	Date/	1 me	110	9α		nuaron	4 Days				
7)Relinquished By		7-28-//	1300	8)Accepted By					Date/	Time			IMPOR	esired .	7 Days 48 Hr	-'7	-//		
9)Seal/Locked By 11)Seal(Locked By		フーンモー// Date/Tim	è	10) Seal/Lock Opened By Vary Culture 7/29/1/ 9:1 12) Seal/Lock Opened By						-	-0.	3ºc	130	0	Other * Add.	Cost V	Vill Apply		
11)Seal@Cocked By Comments	B by ICP A	bete/tim s, Ag,Cu, Cr, Ní, Se,	@	12)Seal/Lock(C		thomas.d.			Date/				Cust	riease indicate					

PEN	ıke erav₅	lytical Laboratory A2 (Building 7405) ers Ferry Rd N. C. 28078	ORDER# J 1 10 70315 MATRIX: OT					ory	S	Only ample rigina rom	S	Ņ(3 3		¹⁹ Pa DISTI ORIGIN		TION	
Fax: (704) 875-4349				G	ch	Date & Time	-(1				SAM! Water	PLE PR		M Grou NPDI Orinking Wa	ES i	COPY	to CL	LIENT
1)Project Name		ws - FGD lonthly Sampling)	2)Phone No:		200			8				RCRA	Waste	UST	_			
2) Client:	Bill Kennedy	/, Melonie Martin, nn, Tom Johnson **	4)Fax No:	AS&C PO#133241		PO#133241		er Ter rv.:1= 4 3=H	HCL INO ₃	>								
5)Business Unit:	The state of the s	6)Process:	Mail Code:	MR#			4=Ice	- 10		4 3	,4	4	3,4			9	p (s	
8)Oper. Unit:		9)Res. Type:	10)Reso. Center:	Customer to complete all appropriate non-shaded areas.		3. 1796000000000000000000000000000000000000						(no dig.)**			n - vendor to	(Important to place filled back into both baggies)		
LAB USE ONLY					S-SP (Capping	d: 2nd and 4th W					2.1		soluble			speciation	portar k into	
11Lab ID	Se Speciation Bot		Description or ID	Date	Time	Signat	ure	17Comp.	18 Grab	S	Hg - 245.	Metals*	Se, solu			Se, spe	AS&C (IIII	
015802	B07584		Purge Eff		08:30	//	atu				1	1	1			1		
03	n e	EQ	EQ Tank Eff.			Travis	1 .	100		•	1	1	1					
04	B10433	BioRe	eactor 1 Inf	7/27/11	08:00	Travel	hut					1	1			1		
05		BioRe	eactor 2 Inf	7/27/11		Tru-	Nowb					1						
06	B11679		eactor 2 Eff	7/27/11	08:00	Tru J	h.D			•	1	1				^1		
08	* peque		ilter Blk	7/9/4	0930	8.40	ains						1					
07	B08532		als Trip Blk	7/19/11	0930	R. Aa						1				1		
							Filtering o	f the	Se is p	perforn	ned in	the fie	ld plea	se provide	e a filt	er blank	too.	
		** send field coll.	pottles for sol. Se															
1) Relinguished By	Customer to sign & da	ate below - fill out from left to		2) Accepted By					D-126	nf								
/Ilavis	The	7/27	1/11 09:00	00	urie	r			Date/	371	16			nd.	22Re	queste	d Tur	rnaro
3) Relinquished By COUNTER 5)Relinquished By		Date/Tin	5111 0900	4) Accepted By 6) Accepted By:			7/2 Date/Time 7/28 Date/Time			10	IMPORTANT!			14 Days				
7)Relinquished By 9)Seal/Locked By		7-28-// Date/Fin	1300	8)Accepted By: 10) Seal/Lock Opened By				Date/				r. IMPOR	. 0		18 Hr _	1-	11	
11)Seal(Locked By		フーンドーバ Date/Tin		12)Seal/Lock O				Date/Time Date/Time					Customer.	se indicate	*	ther Add. Co	st Will	Apply

thomas d johnson@siemens.com

As, Ag, Cu, Cr, Ni, Se, Zn by IMS Digestions = TRM

* B by ICP